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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,564	11/21/2003	Shigeki Miyashita	117119	8461

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
TRAN, BINH Q	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SD

Office Action Summary	Application No.	Applicant(s)	
	10/717,564	MIYASHITA, SHIGEKI	
	Examiner	Art Unit	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,10-14,17 and 23-26* is/are rejected.

7)☒ Claim(s) *2,3,5-9,15,16 and 18-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/21/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
>
> The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 4, 10-14, 17, and 23-26 are rejected under 35 U.S.C. 102 (e) as being anticipated by Farmer et al. (Farmer) (Patent Number 6,650,991).

Regarding claims 1, and 14, Farmer discloses an exhaust gas purification apparatus for an internal combustion engine, comprising: a NOx storage-reduction catalyst (36) which is disposed in an exhaust passageway of the internal combustion engine (12), and which selectively traps and stores a specific component that includes at least one of nitrogen oxides (NOx) and sulfur oxides

(SOx) from an exhaust gas coming into the NOx storage-reduction catalyst by at least one of adsorption and absorption when the exhaust gas coming into the catalyst has an air-fuel ratio lean of stoichiometry, and which releases the specific component stored and removes the specific component through reduction when the exhaust gas coming into the catalyst has a stoichiometric or rich-of-stoichiometry air-fuel ratio (e.g. See col. 4, lines 1-51); a estimation device that estimates an amount of storage of the specific component in the NOx storage-reduction catalyst and an amount of release of the specific component from the NOx storage-reduction catalyst (e.g. See col. 4, lines 22-51); and a regeneration device that performs a regeneration operation of releasing the specific component stored in the NOx storage-reduction catalyst and removing the specific component through reduction by supplying a rich-of-stoichiometry exhaust gas to the NOx storage-reduction catalyst based on the amount of storage of the specific component estimated by the estimation device, wherein the estimation device estimates the amount of storage of the specific component and the amount of release of the specific component with respect to each one of at least two different portions of the NOx storage-reduction catalyst (e.g. See col. 4, lines 1-67; col. 5, lines 1-30).

Regarding claims 4 and 17, Farmer further discloses that the estimation device estimates the amount of storage of the specific component in each portion of the NOx storage-reduction catalyst by determining the amount of release of the specific component from each portion of the NOx storage-reduction catalyst during the regeneration operation for the NOx storage-reduction catalyst (e.g. See col. 4, lines 8-67; col. 5, lines 1-30).

Regarding claims 10 and 23, Farmer further discloses that the estimation device comprises an O2 sensor (42) that is disposed downstream of the NOx storage-reduction catalyst and that

detects an exhaust oxygen concentration, and estimates the amount of the specific component released from each portion of the NOx storage-reduction catalyst based on an output of the O2 sensor during the regeneration operation for the NOx storage-reduction catalyst (e.g. See col. 3, lines 54-67; col. 4, lines 8-64).

Regarding claims 11 and 24, Farmer further discloses that the generation device performs the regeneration operation based on a total of estimated amounts of storage of the specific component in the at least two portions of the NOx storage-reduction catalyst (e.g. See col. 4, lines 8-67; col. 5, lines 1-30).

Regarding claims 12 and 25, Farmer further discloses that the regeneration device determines a duration of maintaining the air-fuel ratio of the exhaust gas flowing into the NOx storage-reduction catalyst at a stoichiometric air-fuel ratio after a short time of maintaining the air-fuel ratio rich of stoichiometry during execution of the regeneration operation based on the amount of storage of the specific component in a specific portion among estimated amounts of storage of the specific component in the at least two portions of the NOx storage-reduction catalyst (e.g. See col. 4, lines 8-67; col. 5, lines 1-30).

Regarding claims 13 and 26, Farmer further discloses that the specific portion of the NOx storage-reduction catalyst is a portion that has a lower rate of release of the specific component during execution of the regeneration operation than another portion of the NOx storage-reduction catalyst (e.g. See col. 4, lines 8-67; col. 5, lines 1-30).

Allowable Subject Matter

Claims 2-3, 5-9, 15-16, and 18-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of six patents:

Kako et al. (Pat. No. 6860101), Katoh et al. (Pat. No. 5412945), Takeshima et al. (Pat. No. 5437153), Cullen et al. (Pat. No. 5894725), Anasuma et al. (Pat. No. 6477834), and Miyashita et al. (Pat. No. 6195987) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
May 12, 2005

Binh Q. Tran
Patent Examiner
Art Unit 3748